

WHAT IS CLAIMED IS:

1. An oil cooler of an engine for a small watercraft, comprising:
a mounting portion configured to mount the oil cooler on an outer wall face of the engine;
an oil passage configured to allow oil to flow therethrough and lead to outside of the oil cooler at the mounting portion; and
a coolant passage through which coolant for cooling the oil flows;
wherein the oil cooler is capable of being disassembled such that an inside of at least the coolant passage is exposed.

2. The oil cooler according to Claim 1, further comprising:
a passage forming plate provided with grooves on one face thereof and an opposite face thereof; and
first and second cover members configured to cover the grooves, respectively;
wherein the oil passage is formed by covering the groove formed on the one face of the passage forming plate with the first cover member, the coolant passage is formed by covering the groove formed on the opposite face of the passage forming plate with the second cover member, and the second cover member is at least partially removably attachable to allow the inside of the coolant passage to be exposed.

3. The oil cooler according to Claim 2, wherein the first cover member is provided with a sensor attaching portion configured to attach a hydraulic-pressure sensor and/or an oil-temperature sensor.

4. The oil cooler according to Claim 2, further comprising:
an oil filter attaching and detaching portion configured to removably attach an oil filter of the engine on the first cover member;

wherein an oil hole is formed in the first cover member in the vicinity of the oil filter attaching and detaching portion to allow the oil filter and the oil passage to communicate with each other with the oil filter attached on the first cover member.

5. The oil cooler according to Claim 4, wherein an oil-receiving portion is provided on the first cover member in the vicinity of the oil filter attaching and detaching portion and below the attached oil filter.

6. The oil cooler according to Claim 5, wherein the oil-receiving portion is plate shaped and is configured to extend from the first cover member along a center axis of the oil filter.

7. The oil cooler according to Claim 4, further comprising:

an adapter configured to allow the oil passage of the oil cooler to communicate with another oil cooler;

wherein the adapter is provided between the oil filter and the first cover member.

8. The oil cooler according to Claim 7, wherein the adapter is removably attached on the first cover member by means of a tubular mounting bolt of the oil cooler.

9. The oil cooler according to Claim 1, further comprising:

a plurality of passage forming plates each provided with a groove on at least one face thereof;

wherein the passage forming plates are removably disposed to have a layered structure, and the oil passage and the coolant passage are each formed by the groove between the passage forming plates.

10. The oil cooler according to Claim 9, wherein the passage forming plates are comprised of an oil passage forming plate forming the oil passage and a coolant passage forming plate forming the coolant passage, and the oil passage forming plate and the coolant passage forming plate are alternately disposed to have a layered structure.

11. The oil cooler according to Claim 1, wherein an inside of at least part of the coolant passage is exposed at the mounting portion.

12. The oil cooler according to Claim 11, further comprising:

a passage forming plate provided with a groove on at least one face thereof; and

a first cover member configured to cover the groove formed on the one face of the passage forming plate;

wherein the passage forming plate is removably mounted on the outer wall face of the engine with an opposite face thereof in contact with the outer wall face of the engine, the oil passage is formed by covering the groove formed on the one face with the first cover member, and the coolant passage is formed between the opposite face of the passage forming plate and the outer wall face of the engine.

13. The oil cooler according to Claim 12, wherein the passage forming plate is provided with a groove on the opposite face thereof, and the groove formed on the opposite face is covered with the outer wall face of the engine.

14. The oil cooler according to Claim 12, further comprising:

an oil filter attaching and detaching portion configured to removably attach an oil filter of the engine on the first cover member;

wherein an oil hole is formed in the first cover member in the vicinity of the oil filter attaching and detaching portion to allow the oil filter and the oil passage to communicate with each other with the oil filter attached on the first cover member.

15. The oil cooler according to Claim 14, further comprising:

an adapter configured to allow the oil passage of the oil cooler to communicate with another oil cooler, wherein the adapter is provided between the oil filter and the first cover member on the oil passage side.

16. A small watercraft comprising:

an engine configured to drive a propulsion mechanism;

an air-intake pipe and an exhaust pipe extending from a cylinder head of the engine; and

an oil cooler configured to cool oil that circulates with the engine;

wherein the air-intake pipe or the exhaust pipe extend from the cylinder head to a lateral side of a crankcase of the engine to have a space between the air-intake pipe and an outer wall face of the crankcase or between the exhaust pipe and the outer wall face of the crankcase, and the oil cooler is mounted on the outer wall face within the space.

17. The small watercraft according to Claim 16, wherein
an oil gallery is formed within a wall portion of the crankcase of the engine to allow the oil to flow therethrough,
the oil cooler includes an oil passage through which the oil flows and a coolant passage through which coolant for cooling the oil flows,
the oil cooler is mounted on the wall face of the crankcase such that the oil passage communicates with the oil gallery, and
the oil cooler is capable of being disassembled such that the inside of at least the coolant passage is exposed.

18. The small watercraft according to Claim 17, wherein the oil cooler includes a passage forming plate provided with grooves on one face thereof and an opposite face thereof, and first and second cover members configured to cover the grooves, respectively,

the oil passage is formed by covering the groove formed on the one face of the passage forming plate with the first cover member, the coolant passage is formed by covering the groove formed on the opposite face of the passage forming plate with the second cover member, and

the second cover member is at least partially removably attachable to allow an inside of the coolant passage to be exposed.

19. The small watercraft according to Claim 17, wherein the engine employs an open-looped cooling system.

20. The small watercraft according to Claim 16, wherein
an oil gallery is formed within a wall portion of the crankcase of the engine to allow the oil to flow therethrough, and
the oil cooler includes an oil passage through which the oil flows, and a coolant passage through which coolant for cooling the oil flows, and at least part of the coolant passage is comprised of the outer wall face of the crankcase in the vicinity of the oil gallery.

21. The small watercraft according to Claim 20, wherein a groove is formed on the outer wall face of the crankcase that partially forms the coolant passage.

22. The small watercraft according to Claim 16, being a personal watercraft comprising a water jet pump driven by the engine.